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IDENTIFIERS Advertising

ABSTRACT

Focusing on communications-related occupations, this document is one in a series of forty-one reprints from the Occupational Outlook Handbook providing current information and employment projections for individual occupations and industries through 1985. The specific occupations covered in this document include advertising workers, interpreters, newspaper reporters, photographers, public relations workers, technical writers, and occupations in radio and television broadcasting (broadcast technicians and radio and television announcers). The following information is presented for each occupation or occupational area: a code number referenced to the Dictionary of Occupational Titles; a description of the nature of the work; places of employment; training, other qualifications, and advancement; employment outlook; earnings and working conditions; and sources of additional information. In addition to the forty-one reprints covering individual occupations or occupational areas (CE 017 757-797), a companion document (CE 017 756) presents employment projections for the total labor market and discusses the relationship between job prospects and education. (BM)

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Communications – Related Occupations

CE



Reprinted from the
Occupational Outlook Handbook,
1978-79 Edition.

U.S. Department of Labor
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U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Containing the midpoints of the legs of right triangle AST , where pt. A is $(-3, 5)$, S is pt. $(1, 1)$, and T is pt. $(3, 4)$.

Containing the longer diagonal of a quadrilateral whose vertices are pts. $(2, 2)$, $(-2, -2)$, $(1, -1)$, and $(8, 4)$.

Show that the equations $y - 1 = \frac{1}{2}(x + 3)$ and $y - 4 = \frac{1}{2}(x - 1)$ are equivalent.

An equation of the line containing pts. $(-2, 3)$ and $(4, -1)$ can be written in the form $y - 3 = -\frac{1}{2}(x + 2)$ or in the form $y + 1 = -\frac{1}{2}(x - 4)$, depending upon which point you take as (x_1, y_1) . Show that the two equations are equivalent.

Show that the equations are equivalent.

$$\frac{y - y_1}{x_2 - x_1} = \frac{y_2 - y_1}{x_2 - x_1} \quad y - y_2 = \frac{y_1 - y_2}{x_1 - x_2} (x - x_2)$$

State the equation of a line through pt. (p, q) and parallel to a line containing pts. (a, b) and (c, d) . ($a \neq c$).

ADVERTISING WORKERS

(D.O.T. 050.088; 132.088; 141.081 and .168; 162.158; and 164.068 through .168)

Nature of the Work

Almost every business, from a small grocery store to a large bank, does some form of advertising to persuade people to buy its products or use its services. Advertising requires the talents of people in many different kinds of jobs. Creative workers such as writers, artists, and designers develop and produce advertisements, while people with business and sales ability handle the arrangements for broadcasting the advertisements on radio and television, publishing them in newspapers or magazines, mailing them directly, or posting them on billboards. The following occupations are those most commonly associated with advertising.

Advertising managers direct the advertising program of the businesses for which they work. They determine the size of the advertising budget, the type of ad and the media to use, and what advertising agency, if any, to employ. Managers who decide to employ an agency work closely with the advertising specialists from the agency. These managers may supervise the preparation of pamphlets, brochures, or other materials developed to promote the firm's products or services. Advertising managers working for newspapers, radio stations, and other communications media have somewhat different duties. They are responsible for selling advertising time or space, and do work that is similar to the work of sales managers in other businesses.

Account executives are employed by advertising agencies to develop advertising programs for client firms and individuals. They first study the client's sales, public image, and advertising problems, and then create a program that suits the client's needs. In most agencies, artists and copywriters are responsible for developing the actual artwork and advertising copy, but in some small agencies, the account executives have this responsibility.

Research directors and their assistants study the market. They review possible uses for the product or service being sold, compare its advantages or disadvantages with those of competitors, and suggest ways of reaching potential buyers. To develop market information, these workers may survey buying habits and motives of customers, or try out sample ads to find the theme or medium that best sells the product. (See the statement on marketing research workers for more information on this occupation.)

Advertising copywriters develop the headlines and text to be used in the ads. By studying information about the product and its potential customers, they are able to write copy aimed at the particular group of customers the advertiser seeks to attract. They may specialize in writing copy for a certain group of people, such as business managers, teenagers, or sports lovers, or for a class of products, such as cars or computer equipment. Copywriters usually work closely with account executives. In some agencies, they may be supervised by copy chiefs.

Artists and layout workers create the visual impact of an ad by selecting photographs, drawing illustrations or figures, and selecting the size or type of print to be used in a magazine or newspaper ad. When television commercials are planned, they usually sketch sample scenes for the client to consider. (See the statements on commercial artists and photographers for more information on this type of work.)

Media directors (or *space buyers* and *time buyers*) negotiate contracts for advertising space or air time. They determine the day and time when a television commercial will reach the largest group of prospective buyers at the lowest cost. To select the best medium for the advertiser, media directors must know the costs of using various media and the characteristics of the audience reached by specific publications or television stations.

Production managers and their assistants arrange to have the ad printed for publication, filmed for television, or recorded for radio. They

must know which firms or freelance workers will be able to produce the best ad for the least cost.

Places of Employment

In 1976, about 180,000 people worked in jobs requiring considerable knowledge of advertising. Those employed in advertising agencies were heavily concentrated in New York City, Los Angeles, and Chicago.

Many others worked in the advertising departments of manufacturing firms, retail stores, banks, power companies, professional and trade associations, and many other organizations. Some people had advertising jobs with television or radio stations, newspapers, and magazines. Still other people in the advertising field worked for printers, art studios, letter shops, package design firms, and similar businesses.

Training, Other Qualifications, and Advancement

Most employers prefer college graduates. Some employers seek persons with degrees in advertising with heavy emphasis on marketing, business, and journalism; others prefer graduates with a liberal arts background (social science, literature, art, and other disciplines); some employers place little emphasis on the type of degree.

No particular educational background is equated with success in advertising. In fact, relevant work experience may be more important than educational background. Experience selling ads for school publications or radio stations, or on a summer job with a marketing research service, can be a distinct advantage to the jobseeker.

Some organizations recruit outstanding college graduates for training programs that cover all aspects of advertising work. In other firms, employees immediately enter a specialty and do not gain such all-round experience. Some beginners start as research or production assistants or as space or time buyers. A few begin as junior copywriters.

Many advertising jobs require imagination, creativity, and a flair for language. These traits are especially

important to artists, layout workers, and account executives. All creative effort must be directed toward the sales function. People interested in becoming advertising managers, account executives, media buyers, and production managers must be able to get along well with people and be able to sell their ideas. Research directors and their assistants must have an understanding of human behavior. All advertising workers must be able to accept criticism of their work and be able to function as part of a team.

Opportunities for advancement in this field generally are excellent for creative, talented, and hard-working people. For example, copywriters and account executives may advance to more responsible work in their specialties, or to managerial jobs, if they demonstrate ability in dealing with clients. Some especially capable workers may become partners in an existing agency, or they may establish their own agency.

Employment Outlook

Employment of advertising workers is expected to increase faster than the average for all occupations through the mid-1980's. Most openings, however, will result from the need to replace workers who die, retire, or leave the occupation for other reasons.

The growing number of consumer and industrial goods and increasing competition in many product and service markets will cause advertising expenditures to rise. Such expenditures also may be spurred by the growing tendency toward self service in retail marketing. An additional factor is the growing need of small businesses for professional advertising services. Employment in advertising occupations is strongly affected by general business conditions because firms expand or contract their advertising budgets according to their financial success. Although opportunities should be favorable for highly qualified applicants, particularly in retail advertising, others seeking entry jobs will face keen competition because the glamorous nature of the field attracts many people.



Advertising can be a satisfying career for persons who enjoy variety, creative challenges, and competition.

Local television, radio, and newspapers are expected to increase their share of total advertising expenditures while direct mail, magazines, and national newspapers continue to lose ground. The few very large agencies that account for nearly all national advertising are expected to maintain fast growth because of their expanding international business.

Earnings and Working Conditions

Based on limited information, annual salaries for beginning advertising workers with bachelor's degrees ranged from \$8,000 to \$10,000 in 1976. Higher starting salaries generally were paid by the largest firms or advertising agencies to outstanding applicants, particularly those with advertising experience.

Salaries of experienced advertising workers varied by size and type of firm as well as by type of job. According to a survey of advertising agencies taken in 1975, average annual salaries of workers in selected occupations were as follows: Chief executive officer, \$45,300; account supervisor, \$28,400; account executive, \$18,500; executive art director, \$24,400; art director, \$17,100; senior layout artist, \$12,900; junior layout artist, \$9,300; copy chief,

\$22,300; senior copywriter, \$16,600; junior copywriter, \$10,500; media director, \$16,800; space or time buyer, \$9,400; research director, \$24,000; research analyst, \$13,500; production manager, \$14,400. Several other surveys yielded these results: In 1976, the top advertising officers in large retail firms averaged over \$32,000 a year; in 1975, the median salary of advertising directors in large banks ranged from \$10,000 to \$17,000 a year; in 1975, the average salary of advertising managers in a wide variety of companies ranged from \$18,000 to \$34,000 a year, depending upon the annual sales volume of the firm. Salaries of advertising managers generally are higher in consumer than industrial products firms, and many receive incentive compensation.

People in advertising work under great pressure, and do not have the job security enjoyed by workers in many other occupations. These workers are expected to produce quality ads in as short a time as possible. Sometimes they must work long or irregular hours to meet deadlines or make last-minute changes. Account executives, copywriters, and layout workers may become frustrated by a client's inability to define the type of ad he or she wants for a product.

Advertising can be a satisfying career for persons who enjoy variety, excitement, creative challenges, and competition. Unlike workers in many other occupations, advertising workers experience the satisfaction of having their work in print, on television, or on radio, even though they remain unknown to the public at large.

Sources of Additional Information

Information on advertising agencies and the careers they offer is available from:

American Association of Advertising Agencies, 200 Park Ave. New York, N.Y. 10017.

For additional information on careers and a list of colleges that provide training in advertising, contact:

American Advertising Federation, 1225 Connecticut Ave. NW., Washington, D.C. 20036.

INTERPRETERS

(D.O.T. 137.268)

Nature of the Work

Interpreters help people of different nations and different cultures overcome language barriers by translating what has been said by one person into a language that can be understood by others.

There are two basic types of oral translation or interpretation: simultaneous and consecutive. In simultaneous interpretation, the interpreter translates what is being said in one language as the speaker continues to talk in another. This technique requires speed and fluency in the foreign language on the part of the interpreter and it is made possible by the use of electronic equipment, which allows for the transmission of the simultaneous speeches. Conference interpreters often work in a glass-enclosed booth from which they can see the speaker. While listening through earphones to what is being said, they simultaneously give the translation by speaking into a microphone. People attending the con-

ference who do not understand the language being spoken may listen to an interpreter's rendition by simply pushing a button or turning a dial to get the translation in the language they know. Simultaneous interpretation generally is preferred for conferences, and the development of portable equipment has extended its use to other large-scale situations.

Consecutive interpretation also involves oral translation. However, the speaker and the interpreter take turns speaking. A consecutive interpreter must have a good memory and generally needs to take notes in order to give a complete and exact translation. The chief drawback of consecutive interpretation is that the process is time consuming, because the speaker must wait for the translation before proceeding.

Since interpreters are needed whenever people find language a barrier, the work involves a variety of topics and situations. Interpreters may be needed, for example, to explain various aspects of American life to a group of foreign visitors, or they may be required to interpret highly technical speeches and discussions for medical or scientific gatherings. They may work at the United Nations, or find themselves in a courtroom or escorting foreign leaders or business people visiting the United States.

Places of Employment

An estimated 175 persons worked full time as interpreters in the United States in 1976. The largest single concentration of interpreters was at the United Nations in New York where about 90 people held full-time posts. Various other international organizations, located primarily in Washington, D.C., also employed regular staff interpreters. Among these are the Organization of American States, the International Monetary Fund, the Pan American Health Organization, and the World Bank. Within the Federal Government, the Departments of State and Justice were the major employers of full-time interpreters.

An estimated 500 persons worked as freelance interpreters. Freelance interpreters may work for various

employers under short-term contracts. About four-fifths were under contract on a temporary basis to the Department of State and the Agency for International Development to serve as escort interpreters for foreign visitors to the United States. Some of these interpreters worked a great portion of the year; others worked for only a few days. The remainder of the freelance interpreters worked in the freelance conference field. These interpreters provided for both the supplementary needs of the international and Federal agencies and for the periodic, short-term needs of various international conferences that are held in this country. The Organization of American States employs many people in this area. Besides persons who work strictly as interpreters, many others do some interpretation work in the course of their jobs.

Training, Other Qualifications, and Advancement

A complete command of two languages or more is the usual requirement for becoming an interpreter. Interpreters must instantaneously call to mind words or idioms corresponding to the foreign ones. An extensive working vocabulary and ease in making the transition from one language structure to another are necessary.

Students who want to become interpreters should become fluent in several languages. Interpreters who



Interpreters must instantaneously call to mind words or idioms corresponding to foreign ones.

work at the United Nations, for example, must know at least three of the six official U.N. languages: Arabic, Chinese, English, French, Russian, and Spanish. Portuguese and, to some extent, Japanese and German are also valuable to interpreters in the United States.

Two schools in the United States offer special programs for interpreter training. Both require foreign language proficiency upon entry. The Georgetown University School of Languages and Linguistics in Washington, D.C., has a 1- or 2-year course of study leading to a Certificate of Proficiency as a conference interpreter. The certificate is recognized by the International Association of Conference Interpreters. Applicants to Georgetown University must qualify on the basis of an entrance test and a minimum of previous studies at the university level; successful candidates usually hold a bachelor's degree, often a master's degree. The Monterey Institute of Foreign Studies in Monterey, Calif., through its Department of Translation and Interpretation, offers a 2-year graduate program leading to a master's degree in Intercultural Communication and a graduate certificate in either translation, translation/interpretation, or in conference interpretation. Applications to the Institute must have a bachelor's degree and pass an aptitude test. They must be fluent in English, plus one other language if studying translation, or in two other languages if wishing to enter the interpretation field. After taking the basic courses in translation and interpretation theory, students must pass a qualifying examination in order to enter the translation or interpretation program. This qualifying examination usually takes place after two semesters of work at the Institute.

Many individuals may qualify as interpreters on the basis of their foreign backgrounds for positions in which extensive experience and a broad education are not as crucial as for other types of interpretation. For example, consecutive interpreters employed by the Immigration and Naturalization Service of the U.S. Department of Justice serve primar-

ily in interpreting legal proceedings, such as hearings for aliens.

Besides being proficient in languages, interpreters are expected to be generally well informed on a broad range of subjects, often including technical subjects such as medicine or scientific or industrial technology. Work as a translator may serve as a useful background in maintaining an up-to-date vocabulary in various specialized or technical areas. The experience of living abroad also is very important for an interpreter.

Although there is no standard requirement for entry into the profession, a university education usually is considered essential.

People interested in becoming interpreters should be articulate speakers and have good hearing. The exacting nature of this profession requires quickness, alertness, and a constant attention to accuracy. Working with all types of people requires good sense, tact, and the emotional stamina to deal with the tensions of the job. It is essential that interpreters maintain confidentiality in their work and that they give honest interpretations.

Advancement in the interpreting field generally is based on satisfactory service. There is some advancement from escort level interpreting to conference level work.

Employment Outlook

Interpreters traditionally face very stiff competition for the limited number of openings. Little change is expected in the number of full-time interpreters through the mid-1980's. Most opportunities, therefore, should result from the need to replace workers who die, retire, or leave their jobs for other reasons. Experience has shown that any slight or sporadic increase in the demand for interpreters can be met by the existing pool of freelance workers. Only highly qualified applicants will find jobs.

Qualified interpreters also may find work abroad. The demand for interpreters in Europe, where so many different languages are spoken, is far greater than in the United States.

People who have linguistic abilities also may find some employment opportunities as translators. In fact, many interpreters find the ability to do translation work, if not requisite, an occupational asset. Foreign language competence also is important for careers in the fields of foreign service, international business, and language education.

Earnings and Working Conditions

Salaries of interpreters depend upon the type of interpreting done as well as the ability and performance of the individual. The tax-free annual starting salary for conference interpreters at the United Nations was \$14,300 in 1976. Outstanding U.N. interpreters could expect to earn almost \$30,000.

Beginning salaries for interpreters in various other international organizations were over \$15,000 a year, according to the limited information available. In addition, international organizations often paid supplementary living and family allowances.

Junior interpreters who worked for the U.S. Department of State received \$17,056 a year in 1977. Starting salaries were somewhat lower for interpreters in other Federal agencies.

In the freelance field, interpreters are paid on a daily basis. Conference interpreter salaries ranged from about \$125 to \$160 a day in 1976. The U.S. Department of State paid a daily salary of \$125.

Freelance escort interpreters received salaries ranging from about \$40 to over \$80 a day, based on the individual's skill and prior performance. Interpreters on assignment usually could expect to be paid for a 7-day week. Interpreters are paid transportation expenses by the employing agency and also receive an allowance to cover the cost of accommodations, meals, and other expenses incidental to their assignments.

The conditions under which interpreters work vary widely. In freelancing, there is little job security because of demand fluctuations, and the duration of various freelance assignments ranges from a few days for a typical conference to several weeks

for some escort assignments. Although the hours interpreters work are not necessarily long, they are often irregular. In some instances, especially for escort freelance workers, a great deal of travel to a wide variety of locations is required.

Sources of Additional Information

Information on the interpreting profession is available from:

The American Association of Language Specialists, 1000 Connecticut Ave. NW., Suite 9, Washington, D.C. 20036.

For information on entry requirements and courses of study at the two schools offering specialized programs for interpreters, contact:

Division of Interpretation and Translation,
School of Languages and Linguistics,
Georgetown University, Washington,
D.C. 20057.

Department of Translation and Interpretation,
Monterey Institute of Foreign Studies,
P.O. Box 1975, Monterey, Calif. 93940.

Information about employment opportunities is available from:

Language Services Division, U.S. Department
of State, Washington, D.C. 20520.

Secretariat Recruitment Service, United Na-
tions, New York, N.Y. 10017.

NEWSPAPER REPORTERS

(D.O.T. 132.268)

Nature of the Work

Newspaper reporters gather information on current events and use it to write stories for publication in daily or weekly newspapers. In covering events, they may interview people, review public records, attend news events, and do research. As a rule, reporters take notes or use tape recorders while collecting facts, and write their stories upon return to the office. Sometimes, to meet deadlines, they telephone their information or stories to rewriters who write or transcribe the stories for them.

Large dailies frequently assign some reporters to "beats," such as police stations or the courts, to gather news originating in these places. General assignment reporters handle

various types of local news, such as a story about a lost child or an obituary of a community leader. Specialized reporters with a background in a particular subject interpret and analyze the news in fields such as medicine, politics, science, education, business, labor, and religion.

Reporters on small newspapers may cover not only all aspects of local news, but also may take photographs, write headlines, lay out pages, and write editorials. On some small weeklies, they also may solicit advertisements, sell subscriptions, and perform general office work.

Places of Employment

More than 40,000 persons worked as newspaper reporters in 1976. The

majority of reporters work for urban daily newspapers; others work for suburban, community, or small town weekly papers and press services.

Reporters work in cities and towns of all sizes. Of the 1,762 daily and 7,579 weekly newspapers, the great majority are in medium-sized towns. However, most reporters work in cities, since big city dailies employ many reporters, whereas a small town paper generally employs only a few.

Training, Other Qualifications, and Advancement

Most newspapers consider only applicants who have a college education. Graduate work is increasingly



Reporters gathering news information.

important. Many editors prefer graduates who have a degree in journalism, which usually includes training in the liberal arts along with professional journalism training. Some editors consider a liberal arts degree sufficient. Others prefer applicants who have a liberal arts bachelor's degree and a master's degree in journalism. High school courses that are useful include English, journalism, social science, and typing.

Bachelor's degree programs in journalism are available in almost 250 colleges. About three-fourths of the courses in a typical undergraduate journalism curriculum are in liberal arts. Journalism courses include reporting, copyreading, editing, feature writing, history of journalism, law, and the relation of the press to society.

More than 500 junior colleges offer journalism programs. Twelve to fifteen hours of credit earned is transferable to most 4-year college programs in journalism. A few junior colleges also offer programs especially designed to prepare the student directly for employment as a general assignment reporter on a weekly or small daily newspaper. The Armed Forces also provide some training in journalism.

A master's degree in journalism was offered by more than 90 schools in 1976; about 20 schools offered the Ph. D. degree. Some graduate programs are intended primarily as preparation for news careers, while others concentrate on preparing journalism teachers, researchers and theorists, and advertising and public relations workers.

Persons who wish to prepare for newspaper work through a liberal arts curriculum should take English courses that include writing, as well as subjects such as sociology, political science, economics, history, psychology, computer science, and speech. Ability to read and speak a foreign language is desirable. Those who look forward to becoming reporters in a specialized field such as science should concentrate on course work in their subject matter areas. Skill in typing is essential because reporters type their own news stories. On small papers, knowledge of news photography also is valuable.

The Newspaper Fund and individual newspapers offer summer internships that provide college students with an opportunity to practice the rudiments of reporting or editing. In addition, more than 2,700 journalism scholarships, fellowships, and assistantships were awarded to college journalism students by universities, newspapers, and professional organizations in 1976.

News reporting involves a great deal of responsibility, since what a reporter writes frequently influences the opinion of the reading public. Reporters should be dedicated to serving the public's need for accurate and impartial news. Although reporters work as part of a team, they have an opportunity for self-expression. Important personal characteristics include a "nose for news," curiosity, persistence, initiative, resourcefulness, an accurate memory, and the physical stamina necessary for an active and often fast-paced life.

Some who compete for full-time reporter jobs find it is helpful to have had experience as a newspaper "stringer"—a part-time reporter who covers the news in a particular area of the community and is paid on the basis of the stories printed. High school and college newspapers, and church or community newsletters, also provide writing and editing experience that may be helpful in getting a job.

Most beginners start on weekly or on small daily newspapers as general assignment reporters or copy editors. A few outstanding journalism graduates are hired by large city papers, but this is the exception rather than the rule. Large dailies generally require several years of reporting experience, which usually is acquired on smaller newspapers.

Beginning reporters are assigned duties such as reporting on civic and club meetings, summarizing speeches, writing obituaries, interviewing important visitors to the community, and covering police court proceedings. As they gain experience, they may report more important events, cover an assigned "beat," or specialize in a particular field.

Newspaper reporters may advance to reporting for larger papers or press

services. Some experienced reporters become columnists, correspondents, editorial writers, editors, or top executives; these positions represent the top of the field and competition for them is keen. Other reporters transfer to related fields such as public relations, writing for magazines, or preparing copy for radio and television news programs.

Employment Outlook

Competition for newspaper reporting jobs is expected to continue through the mid-1980's. If enrollments continue at record levels as they have in the past few years, record numbers of journalism graduates will be looking for jobs. However, employment in the communications field is not expected to expand sufficiently to absorb all those seeking jobs, and a sizable number of journalism graduates will have to launch careers in other fields.

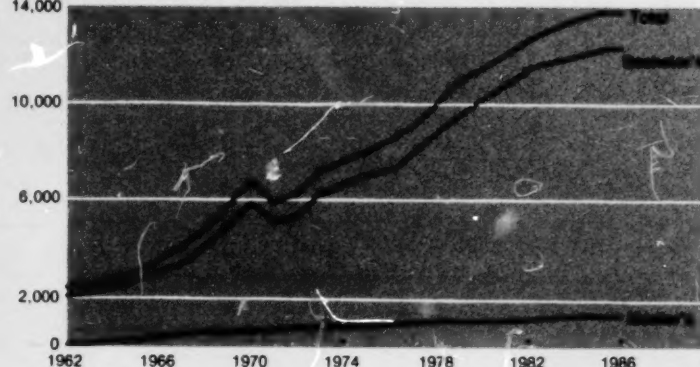
Newspaper reporters in particular face heightened job competition. Although the communications field is expected to expand through the mid-1980's, newspapers are not expected to share fully in this growth. As a result, employment of reporters will increase more slowly than the average for all occupations. Most job openings will arise from the need to replace reporters who are promoted to editorial or administrative positions, transfer to other fields of work, retire, or leave the profession for other reasons.

Bright, energetic persons with exceptional writing ability will have the best opportunities for beginning jobs as newspaper reporters. Talented writers who are able to handle news about highly specialized scientific or technical subjects will also be at an advantage in the competitive job market.

Weekly or daily newspapers located in small towns and suburban areas are expected to continue to offer most of the opportunities for beginners entering newspaper reporting. Openings arise on these papers as reporters gain experience and move up to other editorial positions or transfer to reporting jobs on larger newspapers or to other types of work. Beginning reporters able to help with

Rapid increase in the number of journalism graduates will produce intense competition for communications jobs

Earned degrees in journalism
14,000
10,000
6,000
2,000
0



Source: National Center for Education Statistics

photography and other specialized aspects of newspaper work and who are accustomed with the community are likely to be given preference in employment on small papers.

Most big city dailies require experience and do not ordinarily hire new graduates. Sometimes, however, new graduates find newsroom jobs on major metropolitan dailies because of outstanding credentials in an area for which a particular paper has a pressing need. Occasionally, the experience and contacts gained through an internship program lead to a reporting job directly after graduation.

In addition to newspaper reporting, college graduates who have majored in journalism have the background for jobs in related fields such as advertising, public relations, trade and technical publishing, radio and television, and law. Because continued high enrollment is foreseen in journalism education programs, opportunities to teach journalism are expected to be good. College teaching jobs currently require professional experience and at least a master's degree.

Earnings and Working Conditions

Reporters working for daily newspapers having contracts negotiated by The Newspaper Guild had aver-

age starting salaries of \$10,600 in late 1976. In general, earnings of newspaper reporters in 1976 were above average earnings received by nonsupervisory workers in private industry, except farming.

Minimum salaries of reporters having 4 or 5 years of experience who worked for daily newspapers with Guild contracts averaged \$16,700 in 1976. The minimums ranged from \$9,960, paid by the smallest dailies, to more than \$26,000 paid by the largest. Many reporters, however, were paid salaries higher than these minimums. Reporters working for national wire services received annual salaries of at least \$19,000.

Most newspaper reporters generally work a 5-day, 35- or 40-hour week. Reporters working for morning papers usually start work in the late afternoon and finish at about midnight. Most reporters also receive benefits such as paid vacations, group insurance, and pension plans.

Sources of Additional Information

Information about opportunities for reporters with daily newspapers is available from:

American Newspaper Publishers Association Foundation, P.O. Box 17407, Dulles International Airport, Washington, D.C. 20041.

For information on opportunities in the newspaper field and starting salaries of journalism graduates, as well as a list of journalism scholarships, fellowships, assistantships, and loans available at colleges and universities, write to:

The Newspaper Fund, Inc., Box 300, Princeton, N.J. 08540.

Information on union wage rates is available from:

The Newspaper Guild, Research and Information Department, 1125 15th St. NW., Washington, D.C. 20005.

For general information about careers in journalism contact:

American Council on Education for Journalism, School of Journalism, University of Missouri, Columbia, Mo. 65201.

Association For Education in Journalism, 102 Reavis Hall, Northern Illinois University, DeKalb, Ill. 60115.

The Society of Professional Journalists, Sigma Delta Chi, 35 East Wacker Dr., Chicago, Ill. 60601.

Information on opportunities for women in newspaper reporting and other communications fields is available from:

Women In Communications, Inc., P.O. Box 9561, Austin, Tex. 78766.

Names and locations of daily newspapers and a list of schools and departments of journalism are published in the *Editor and Publisher International Year Book*, available in most public libraries and large newspaper offices.

PHOTOGRAPHERS

(D.O.T. 143.062, .282, and .382)

Nature of the Work

Photographers use their cameras and film to portray people, places, and events much as a writer uses words. Those who are skillful can capture the personality of individuals or the mood of scenes which they photograph. Some photographers specialize in scientific, medical, or engineering photography, and their pictures enable thousands of persons

to see a world normally hidden from view.

Although their subject matter varies widely, all photographers use the same basic equipment. The most important piece, of course, is the camera, and most photographers own several. Unlike snapshot cameras, which have a lens permanently attached to the camera body, professional cameras are constructed to use a variety of lenses designed for close-up, medium-range, or distance photography.

Besides cameras and lenses, photographers use a variety of film and colored filters to obtain the desired effect under different lighting conditions. When taking pictures indoors or after dark, they use electronic flash units, floodlights, reflectors, and other special lighting equipment.

Some photographers develop and print their own photographs in the darkroom and may enlarge or otherwise alter the basic image. Many photographers send their work to photographic laboratories for processing.

Because the procedures involved in still photography are quite different from those in motion picture photography, many photographers specialize in one or the other. However, there is a growing demand for photographers who have training in both areas.

In addition to knowing how to use their equipment and materials, pho-

tographers must be capable of composing the subjects of their photographs and recognizing a potentially good photograph.

Many photographers specialize in a particular type of photography, such as portrait, commercial, or industrial work. Portrait photographers take pictures of individuals or groups of persons and often work in their own studios. For special events, such as weddings or christenings, however, they take photographs in churches and homes. Portrait photographers in small studios frequently do all the operations, including scheduling appointments and setting up and adjusting equipment before taking the pictures, as well as developing and retouching negatives, developing proofs, and mounting and framing pictures. They also may be the ones to collect payments and keep records, and therefore must be good business persons.

Commercial photographers photograph a wide range of subjects including livestock, manufactured articles, buildings, and large groups of people. They frequently do photography for catalogs. Those in advertising take pictures to promote such items as clothing, furniture, automobiles, and food, and may specialize in one such area. Advertising photographers must know how to use many different photographic techniques.

The work of industrial photographers is used in company publications to report to stockholders or to advertise company products or services. Industrial photographers also photograph groups of people for employee news magazines or may take motion pictures of workers operating equipment and machinery for management's use in analyzing production or work methods. They may also use special photographic techniques as research tools. For example, medical researchers often use ultraviolet and infrared photography, fluorescence, and X-rays to obtain information not visible under normal conditions. Time lapse photography (where time is stretched or condensed), photomicrography (where the subject of the photography may be magnified 50 or 70 times or more), and photogrammetry (surveying an area using aerial photogra-

phy) are other special techniques.

Other photographic specialties include photojournalism, or press photography, which combines a "nose for news" with photographic ability; and educational photography (preparing slides, filmstrips, and movies for use in the classroom).

Places of Employment

About 85,000 photographers were employed in 1976. The greatest proportion worked in commercial studios; many others worked for newspapers and magazines. Government agencies, photographic equipment suppliers and dealers, and industrial firms also employed large numbers of photographers. In addition, some photographers taught in colleges and universities, or made films. Still others worked freelance, taking pictures to sell to advertisers, magazines, and other customers. About one-third of all photographers were self-employed.

Jobs for photographers are found in all parts of the country—both small towns and large cities—but are concentrated in the more populated areas.

Training, Other Qualifications, and Advancement

Photographic training is available in colleges, universities, junior colleges, and art schools. Over 75 colleges and universities offer 4-year curriculums leading to a bachelor's degree in photography. Some colleges and universities grant master's degrees in specialized areas, such as photojournalism. In addition, some colleges have 2-year curriculums leading to a certificate or an associate degree in photography. A formal education in photography gives a solid fundamental background in a variety of equipment, processes, and techniques. Art schools offer useful training in design and composition, but not the technical training needed for professional photographic work. (See the statement on commercial artists elsewhere in the *Handbook*.) The Armed Forces also train many young people in photographic skills.

Although a high school education is desirable, the photography profession has no set entry requirements



Commercial photographers must be imaginative and original.

with regard to formal education or training. However, the training a prospective photographer has determines the type of work for which he or she qualifies.

People may prepare for work as photographers in a commercial studio through 2 or 3 years of on-the-job training as a photographer's assistant. Trainees generally start in the darkroom where they learn to mix chemicals, develop film, and do photoprinting and enlarging. Later they may set up lights and cameras or help an experienced photographer take pictures.

Amateur experience is helpful in getting an entry job with a commercial studio, but post-high school education and training usually are needed for industrial or scientific photography. Here success in photography depends on being more than just a competent photographer, and adequate career preparation requires some knowledge of the field in which the photography is used. For example, work in scientific, medical, and engineering research, such as photographing microscopic organisms, requires a background in the particular science or engineering specialty as well as skill in photography.

Photographers must have good eyesight and color vision, artistic ability, and manual dexterity. They also should be patient and accurate and enjoy working with detail. Some knowledge of mathematics, physics, and chemistry is helpful for understanding the use of various lenses, films, light sources, and development processes.

Some photographic specialties require additional qualities. Commercial or freelance photographers must be imaginative and original in their thinking. Those who specialize in photographing news stories must be able to recognize a potentially good photograph and act quickly, for otherwise an opportunity to capture an important event on film may be lost. Photographers who specialize in portrait photography need the ability to help people relax in front of the camera.

Newly hired photographers are given relatively routine assignments that do not require split-second cam-

era adjustments or decisions on what subject matter to photograph. News photographers, for example, may be assigned to cover civic meetings or photograph snow storms. After gaining experience they advance to more demanding assignments, and some may move to staff positions on national news magazines. Photographers with exceptional ability may gain national recognition for their work and exhibit their photographs in art and photographic galleries, or publish them in books. A few industrial or scientific photographers may be promoted to supervisory positions. Magazine and news photographers may eventually become heads of graphic arts departments or photography editors.

Employment Outlook

Employment of photographers is expected to grow more slowly than the average for all occupations through the mid-1980's. In addition to openings resulting from growth, others will occur each year as workers die, retire, or transfer to other occupations.

Growth of employment in business and industry is occurring as greater importance is placed upon visual aids for use in meetings, stockholders' reports, sales campaigns, and public relations work. Video and motion picture photography are becoming increasingly important in industry. Photography also is becoming an increasingly important part of law enforcement work, as well as scientific and medical research, where opportunities are expected to be good for those possessing a highly specialized background.

The employment of portrait and commercial photographers is expected to grow slowly, and competition for jobs as portrait and commercial photographers and photographers' assistants is expected to be keen. These fields are relatively crowded since photographers can go into business for themselves with a modest financial investment, or work part time while holding another job. The increased use of self-processing cameras in commercial photography also has contributed to the crowding

in this field, since little photographic training is required for such work.

Earnings and Working Conditions

Beginning photographers who worked for newspapers that have contracts with The Newspaper Guild had weekly earnings between \$128 and \$432 in 1976, with the majority earning between \$175 and \$225. Newspaper photographers with some experience (usually 4 or 5 years) averaged about \$320 a week in 1976. Almost all experienced newspaper photographers earned over \$225; the top salary was nearly \$505 a week.

Photographers in the Federal Government earned an average of \$14,900 a year in 1976. Depending on their level of experience, newly hired photographers in the Federal Government earned from \$8,320 to \$11,520 a year. Most experienced photographers earned between \$11,520 and about \$18,460 a year.

Experienced photographers generally earn salaries that are above the average for nonsupervisory workers in private industry, except farming. Although self-employed and freelance photographers often earn more than salaried workers, their earnings are affected greatly by general business conditions and the type and size of their community and clientele.

Photographers who have salaried jobs usually work a 5-day, 35-40 hour week and receive benefits such as paid holidays, vacations, and sick leave. Those in business for themselves usually work longer hours. Freelance, press, and commercial photographers travel frequently and may have to work in uncomfortable surroundings. Sometimes the work can be dangerous, especially for news photographers assigned to cover stories on natural disasters or military conflicts.

Sources of Additional Information

Career information on photography is available from:

Photographic Art & Science Foundation, 111 Stratiord Rd., Des Plaines, Ill. 60016.

Professional Photographers of America, Inc. 1090 Executive Way, Des Plaines, Ill. 60018.

PUBLIC RELATIONS WORKERS

(D.O.T 165.068)

Nature of the Work

Public relations workers apply their talent for communication in many different areas. They may handle press, community, or consumer relations, sales promotion, political campaigning, interest-group representation, fund raising, or employee recruitment. The role they play is crucial to improved understanding and cooperation among the diverse individuals, groups, organizations, and institutions that make up our society.

How successfully an organization presents goals and policies may affect its public acceptance, prosperity, and even its continued existence. Public relations workers help organizations build and maintain positive public reputations. Public relations is more than telling the employer's

"story," however. Understanding the attitudes and concerns of customers, employees, and various other "publics"—and communicating this information to management—is an important part of the job.

Public relations departments are found in organizations of all kinds, and workers must tailor their programs to an employer's particular needs. A public relations director for a college or university, for example, may devote most of his or her energies to attracting additional students, while one in a large corporation may handle the employer's relations with stockholders, government agencies, and community groups.

Public relations workers put together information that keeps the public aware of their employer's activities and accomplishments and keeps management aware of public attitudes. After preparing the information, they may contact people in the media who might be interested in publicizing their material. Many radio or television public service af-

firmations or special reports, newspaper items, and magazine articles start at public relations workers' desks. Sometimes the subject is a company and its policies towards its employees or its role in the community. Often the subject is a public issue, such as health, nutrition, energy, or the environment.

Public relations workers also arrange and conduct programs in which company representatives will have direct contact with the public. Such work includes setting up speaking engagements for company officials and writing speeches for them. These workers often serve as an employer's representative during community projects or occasionally may show films at school assemblies, plan conventions, or manage fund-raising campaigns.

Public relations staffs in very large firms may number 200 or more, but in most firms the staff is much smaller. The director of public relations, who is often a vice president, may develop overall plans and policies with a top management executive. In addition, large public relations departments employ writers, research workers, and other specialists who prepare material for the different media, stockholders, and other publics.

Workers who handle publicity for an individual or direct public relations for a university or small business may handle all aspects of the job. They make contacts with people outside the organization, do the necessary planning and research, and prepare material for publication. These workers may combine public relations duties with advertising or sales promotion work; some are top-level officials and others have lower level positions. The most skilled public relations work of making overall plans and maintaining contacts usually is done by the department director and highly experienced staff members.

Places of Employment

About 115,000 persons were public relations workers in 1976. Manufacturing firms, public utilities and transportation companies, insurance companies, and trade and profession-



Public relations workers help organizations build and maintain a positive public image.

al associations employ many public relations workers. A sizable number work for government agencies (the Federal Government alone employs several thousand public information specialists), or for schools, colleges, museums, and other educational, religious, and human service organizations. The rapidly expanding health field also offers opportunities for public relations work, in hospitals, pharmaceutical companies, and medical associations, for example. A number of public relations workers are employed by public relations consulting firms which furnish public relations services to clients for a fee. Some work for advertising agencies.

Public relations workers are concentrated in large cities where press services and other communications facilities are readily available, and where many businesses and trade associations have their headquarters. More than half of the estimated 2,000 public relations consulting firms in the United States are in New York, Los Angeles, Chicago, and Washington, D.C. A major trend, however, is the dispersal of public relations jobs throughout the Nation, including smaller towns.

Training, Other Qualifications, and Advancement

A college education combined with public relations experience is an excellent preparation for public relations work. Although most beginners have a college degree in journalism, communications, or public relations, some employers prefer a background in a field related to the firm's business—science, finance, or engineering, for example. Some firms want college graduates with experience working for the news media. In fact, many editors, reporters, and workers in closely related fields enter public relations work.

In 1976, about 90 colleges and more than 30 graduate schools offered degree programs or special curriculums in public relations, usually administered by the journalism or communications department. In addition, about 200 colleges offered at least one course in this field. Courses include public relations theory and techniques, organizational communi-

cation, public relations management and administration, practical courses in public relations, and others. Specialties are offered in public relations in business, government, and non-profit organizations. Persons with a bachelor's degree in public relations or a related field generally enter staff positions whereas those with a graduate degree are more qualified for administrative and managerial jobs.

Public relations workers must have considerable ability to gather information, write, speak, and deal effectively with people. Courses in journalism, business administration, psychology, sociology, political science, advertising, English, and public speaking help in preparing for a public relations career. Extracurricular activities such as writing for a school publication or television or radio station provide valuable experience. Many schools help students gain part-time or summer internships in public relations which provide training that can help in competing for entry positions. Membership in the Public Relations Student Society of America provides an opportunity for students to exchange views with public relations practitioners and to make professional contacts that may be helpful in later securing a job in the field. A portfolio of published articles, television or radio programs, slide presentations, and other work samples usually is an asset in finding a job.

Creativity, initiative, and the ability to express thoughts clearly and simply are important to the public relations worker. Fresh ideas are so vital in public relations that some experts spend all their time developing new ideas, leaving the job of carrying out programs to others.

People who choose public relations as a career need an outgoing personality, self-confidence, and an understanding of human psychology. They should have the enthusiasm necessary to motivate people. Public relations workers need a highly developed sense of competitiveness and the ability to function as part of a team.

Public information specialist positions in the Federal Government generally require a college degree. Media, writing, or editing experience

may be quite helpful in gaining such a position. Requirements for similar positions in State and local governments vary.

Some companies—particularly those with large public relations staffs—have formal training programs for new workers. In other firms, new employees learn by working under the guidance of experienced staff members. Beginners often maintain files of material about company activities, scan newspapers and magazines for appropriate articles to clip, and assemble information for speeches and pamphlets. After gaining experience, they work on more difficult assignments, such as writing press releases, speeches, and articles for publication. In some firms, workers get all-round experience whereas in other firms, public relations workers tend to specialize.

Promotion to supervisory jobs may come as workers show they can handle more demanding and creative assignments. Some experienced public relations workers start their own consulting firms.

The Public Relations Society of America accredits public relations workers who have at least 5 years' experience in the field and have passed a comprehensive 6-hour examination (4 hours written, 2 hours oral). However, because of disagreements over the appropriateness of formal licensing requirements in this field, such requirements are not expected in the immediate future.

Employment Outlook

Employment of public relations workers is expected to increase faster than the average for all occupations through the mid-1980's. In addition to new jobs created by this growth, openings will occur every year because of the need to replace workers who die, retire, or leave the field for other reasons.

Demand for public relations workers may be affected by economic conditions, slackening as employers delay expansion or impose staff cuts during business slowdowns. Over the long run, however, expenditures on public relations are expected to increase substantially. Corporations, associations, and other large organi-

zations are likely to expand their public relations efforts to gain public support and approval.

Competition for beginning jobs is keen, for public relations work has an aura of glamour and excitement that attracts large numbers of jobseekers. Furthermore, the number of people who transfer into public relations from newspaper, advertising, or other closely related jobs is expected to exceed the number transferring out. This factor should serve to stiffen competition.

Prospects for a career in public relations are best for highly qualified applicants—talented people with sound academic preparation and some media experience. Most openings are expected to occur in large organizations—corporations, public relations consulting firms, manufacturing firms, educational institutions, and others.

Earnings and Working Conditions

Starting salaries for college graduates beginning in public relations work generally ranged from \$7,500 to \$10,000 a year in 1976; persons with a graduate degree generally started at a higher salary.

The salaries of experienced workers generally are highest in large organizations with extensive public relations programs. According to a 1976 survey, median annual salaries of public relations workers were as follows: Presidents of public relations consulting firms, \$38,000; public information or relations directors and managers in the Federal Government, \$23,500; in State government, \$17,000; in local government, \$22,000; in educational organizations, \$23,500. According to a 1975 survey of a wide range of firms, public relations executives averaged \$29,000-49,000 a year, while public relations managers averaged \$21,000-31,000 a year, depending on the annual sales volume of the firm. Many firms offered incentive compensation. Based on a 1975 survey of advertising agencies, public relations directors averaged \$20,100 a year, while public relations account executives averaged \$15,100.

Public relations consulting firms

often pay higher salaries than organizations with their own public relations departments. Salaries in manufacturing firms are among the highest while salaries in social welfare agencies, nonprofit organizations, hospitals, and universities are among the lowest.

In the Federal Government, bachelor's degree holders generally started at \$9,303 or \$11,523 a year in 1977, depending upon the applicant's academic record; master's degree holders generally started at \$14,097 a year; additional education or experience could qualify applicants for a higher salary. Public information specialists averaged about \$24,300 a year in 1977.

Although the workweek for public relations staffs usually is 35 to 40 hours, overtime often is necessary to prepare or deliver speeches, attend meetings and community activities, or travel out of town. Occasionally, the nature of their regular assignments or special events requires public relations workers to be on call around the clock.

Sources of Additional Information

For career information and a list of schools offering degrees and courses in the field, write to:

Career Information, Public Relations Society of America, Inc., 845 Third Ave., New York, N.Y. 10022.

Current information on the public relations field, salaries, and other items is available from:

PR Reporter, Dudley House, P.O. Box 600, Exeter, N.H. 03833.

For additional information on job opportunities and the public relations field in general, write to:

Service Department, *Public Relations News*, 127 East 80th St., New York, N.Y. 10021.

TECHNICAL WRITERS

(D.O.T. 139.288)

Nature of the Work

Technical writers put scientific and technical information into lan-

guage that can readily be understood by people who need to use it. They research, write, and edit technical materials and also may produce publications or audiovisual materials. To ensure that their work is accurate, technical writers must be expert in the subject area in which they are writing—laser beams or pharmacology, for example. At the same time, their writing must be clear and easy to follow. Command of the language and versatility of style are tools of the trade that enable technical writers to convey information in a way that is helpful to people who use it—scientists, technicians, executives, sales representatives, and the general public.

Some organizations use job titles other than "technical writer." Depending on the particular employer, people in technical writing jobs may be called publications engineers, communications specialists, industrial writers, medical writers, communicators, or instructional materials developers.

Technical writers set out either to instruct or inform, and in many instances they do both. They prepare manuals, catalogs, parts lists, and instructional materials needed by the sales representatives who sell machinery or scientific equipment and by the technicians who install, maintain, and service it. Instructional aids must be prepared to assist the people who operate complex equipment—for example, the technicians who monitor sophisticated diagnostic equipment in a hospital's coronary care unit. Writing manuals and training aids for military weapons and equipment is a highly specialized field of technical writing. Sometimes technical writers are asked to write scripts for training films, or to prepare instructional materials for self-teaching cassettes, filmstrips, or kits.

Many technical writers prepare reports on the results of research projects. By communicating research developments to other scientists, engineers, and technicians, these reports spread scientific and technical progress and help prevent duplication of effort. Reports also play an important part within a company; hundreds of progress reports may be

sent from one department to another within the course of a year. Detailed reports also must be prepared for regulatory agencies and for agencies that fund research and development projects. Some reports—environmental impact statements, for example—require such a detailed treatment of technical subjects that they usually are prepared by scientists with the assistance of technical writers. Annual reports to stockholders sometimes are an additional responsibility.

Proposal preparation is another important duty of technical writers. Proposals are requests for the money or facilities to conduct a project, develop a prototype of a new product, or do research. When a proposal is being prepared, scientists and engineers provide the technical materials, management provides the budget, and a team of technical writers usually shapes the final proposal.

Manuals, reports, and proposals make up the bulk of technical writing today; however, the work may take other forms. Technical writers may write specifications; prepare speeches and news releases; edit and write technical books; prepare articles for popular magazines; develop advertising copy, promotional brochures, and text for exhibits and displays; and handle technical documentation.

When they begin a writing assignment, technical writers usually start by learning as much as they can about the subject. They study reports, sometimes blueprints; read technical journals; consult with engineers, scientists, and technicians who have worked on the project; or examine the equipment. After they have assembled as much information as appropriate, given the time they have and the purpose of the document, they draw up an outline. Then they prepare a rough draft, which may undergo several revisions before being accepted in final form. Technical writers usually arrange for the preparation of tables, charts, illustrations, and other artwork that accompanies a finished document and may work directly with technical illustrators, drafters, or photographers.

Places of Employment

An estimated 22,000 technical writers and editors were employed in 1976. Many work for large firms in the electronics, aviation, aerospace, ordnance, chemical, pharmaceutical, and computer manufacturing industries. Firms in the energy, communications, and computer software fields also employ many technical writers.

Research laboratories employ significant numbers of technical writers. Some laboratories are affiliated with manufacturing companies to concentrate on developing products or improving the manufacturing process. Other research laboratories—including those connected with universities, government agencies, or private foundations—engage in both basic and applied research.

The Federal Government employs technical writers and editors in areas as diverse as the physical sciences, weapons development, agriculture, health, and space exploration. Three out of four technical writers and editors in the Federal Government work for the Department of Defense. Other agencies that employ technical writers include the Departments of Interior; Agriculture; Health, Education, and Welfare; and the National Aeronautics and Space Administration.

Many people in this occupation work directly for publishing houses. They hold writing and editing jobs with business and trade publications; professional journals in engineering, medicine, physics, chemistry, and other sciences; and publishers of scientific and technical literature.

The rapidly growing information industry provides a new area of employment for technical writers. Commercial firms that provide their clients with access to a computerized data base employ technical information specialists to collect, process, and manage a vast amount of information. Technical writers are particularly well suited for such jobs because of their combination of technical and communications skills. Such jobs also are available at the technical information centers run by major industrial firms and research laboratories.

Established technical writers may work on a free-lance basis or open their own agencies or consulting firms.

Technical writers are employed all over the country but the largest concentrations are in the Northeast, Texas, and California.

Training, Other Qualifications, and Advancement

There are no rigid requirements for entry into the field. As a result, people having a variety of backgrounds find jobs as technical writers. Employers seek people whose educational background or work experience indicates that they are familiar with a technical subject and can write about it effectively. Knowledge of graphics and other aspects of publication production may be helpful in getting a job. An understanding of current trends in communication technology is an asset, and familiarity with computer operations and terminology is increasingly important.

A college degree is helpful, and many employers insist on it. Hiring criteria vary, however. Many employers prefer candidates with a degree in science or engineering plus a minor in English, journalism, or technical communications. Other employers emphasize writing ability and, in turn, look for candidates whose degrees are in journalism or the liberal arts. Depending on their line of business, these employers almost always require course work or practical experience in a specific subject as well—computer science or biochemistry, for example.

Besides having writing skills and scientific or technical expertise, technical writers should be intellectually curious and able to think logically. They must be very accurate in their work and must be able to deal precisely with a mass of detailed material. Because they often work as part of a team, they should be able to work with others; this requires tact and a cooperative attitude. Technical writers sometimes work alone for long periods with little or no supervision, so they must also be disciplined about work habits and schedules.

Most technical writers do not enter the occupation directly from college.



The majority of technical writers have work experience as technicians, scientists, or engineers.

The majority work initially in other jobs, usually as technicians, scientists, or engineers. Some begin as research assistants, editorial assistants, or trainees in a company's technical information or advertising department. In time, these people may assume writing duties and develop technical communication skills. When a flair for writing becomes evident, they may seek a technical writing position in the same company or find a writing job elsewhere.

While many employers consider only seasoned, experienced writers in filling vacancies, not all do. Some firms hire college graduates for writer trainee positions. People with solid backgrounds in science or engineering are at an advantage in competing for such jobs. Those with bachelor's or master's degrees in technical writing are often preferred over candidates who have little or no writing background. However, a degree in almost any field may be acceptable, providing the candidate has the necessary technical and communications skills. Beginners can develop experience and demonstrate their ability through writing material for local weekly newspapers and by publishing articles in student journals. A portfolio of writing samples is helpful when applying for a job.

In 1976, 10 colleges and universities offered programs leading to a bachelor's degree in technical writing, and 4 schools had associate degree programs. Graduate programs leading to a master's degree in technical writing were offered at six schools, one of which also offered a

Ph. D. These programs have various names, including science or medical writing, science information, technical journalism, and technical communication.

Most undergraduate programs in technical writing are interdisciplinary. While such programs may be based in the communications, journalism, or language and literature department, they generally are given in close cooperation with the mathematics, engineering, and science departments. At most schools, about 30 percent of the student's course work is in communications. Typical courses include communication theory, writing and editing, layout and design, and graphics. From 25 to 40 percent of the courses are in science or technology. The remainder of the program may be in the social sciences and humanities, or may be devoted entirely to electives. Students usually are advised to take courses in related fields such as computer science and statistics. At many schools, internships in industry or government give students in the technical writing program an opportunity for first-hand job experience.

Graduate programs in technical writing emphasize the field of communications. Many graduate students in technical writing already have a bachelor's degree in science, engineering, or technology. Others come from liberal arts backgrounds. A typical graduate program includes courses in the theory of communication, writing and editing, technology assessment, and management.

Although only a few schools offer degrees in technical writing or technical illustrating, hundreds of colleges and universities offer one or more courses in these fields. Students with such diverse majors as agriculture, chemistry, engineering, and business administration can elect courses in advanced composition, copy editing, typography, technical advertising, industrial communications, and proposal writing, for example. Many engineering schools offer English courses to sharpen writing skills, and several have developed extensive course offerings in technical writing. Several schools of journalism offer courses in medical journalism.

Numerous special institutes, seminars, and workshops are available to bring technical writers up to date. Some take the form of intensive 1- or 2-week summer seminars sponsored by colleges and universities. Others are workshops run by technical communication consultants or by organizations that specialize in employee training and development.

Beginners often assist experienced technical writers by doing library research and preparing drafts of reports. Experienced writers in companies with large technical writing staffs may move to the job of technical editor or shift to an administrative position in the publications or technical information departments. The top job is that of publications manager, who normally supervises all of the people directly involved in producing the company's technical documents. The manager supervises not only the technical writers and editors, but also the staff responsible for illustrations, photography, reproduction, and distribution.

After gaining experience and contacts, some technical writers freelance or form their own firms. Some consulting firms handle industrial publicity and technical advertising for corporate clients. Other technical communications firms do the actual writing and production of the catalogs, manuals, and brochures that may be needed for the promotion of a new product, for example. Successful technical writers are frequently in demand to conduct writing seminars in industry and government, and some teach at colleges and universities in addition to their regular jobs.

It also is possible to advance by becoming a specialist in a particular scientific or technical subject. These writers sometimes prepare syndicated newspaper columns or articles for popular magazines.

Employment Outlook

Employment of technical writers is expected to increase about as fast as the average for all occupations through the mid-1980's. In addition to openings due to growth, opportunities will result from the need to replace those who die, retire, or transfer to other occupations. Em-

employment opportunities will be best for experienced technical writers and for beginners who have both writing ability and a scientific or technical background. People who cannot demonstrate both a technical background and communications skills may face stiff competition for beginning jobs.

Demand for technical writers is expected to increase because of the continuing expansion of scientific and technical information and the need to communicate research results to the scientific community as effectively as possible. Also contributing to the demand for technical writers is the growing need to put scientific and technical information into language that corporate managers, sales representatives, and service technicians can understand. With the increasing sophistication and complexity of industrial and scientific equipment, more and more users will depend on a technical writer's ability to prepare explanations and instructions in precise but simple terms.

Government expenditures for research and development (R&D) will continue to have a significant effect on job opportunities for technical writers. Their employment, like that of scientists and engineers, is linked to spending levels for basic research and for product development in such important areas as defense, space exploration, energy, pollution control, medicine, and communications technology. Through the mid-1980's, R&D expenditures are expected to increase, but growth will be slower than it was during the peak period of the 1960's.

Relatively few job openings are expected in the Federal Government. The number of technical writers and editors employed by Federal agencies has declined since the late 1960's, and most vacancies will occur as Federal employees retire or transfer to other jobs.

Earnings and Working Conditions

Salaries depend not only on the amount and kind of education a technical writer has, but also on experience and the ability to produce. The

type, size, and location of the employer also are important. Earnings generally are higher on the East Coast and in California than in other parts of the country. Free-lancing can be an important source of additional income, but freelance earnings vary greatly because they depend on the writer's ability and reputation.

Starting salaries for college graduates began at about \$10,000 in 1976, although graduates with degrees in engineering, science, or technical communications generally began at \$12,000 or more. Experienced technical writers averaged around \$19,500 a year in 1976, while those in supervisory positions earned \$25,000 or more. There were substantial regional variations, however.

In the Federal Government in 1977, beginning technical writers with a bachelor's degree and about five science courses were paid \$9,303 a year; those with a bachelor's degree and 1 year's specialized experience could start at \$11,523 a year. The average salary for techni-

cal writers in Federal agencies was \$19,901.

Technical writers, in and out of government, may work under considerable pressure, frequently working overtime to meet publication deadlines. Their working environment generally is clean and well-lighted.

Sources of Additional Information

For information about careers in technical writing, and the names of colleges and universities that offer programs in technical communication, contact:

Society for Technical Communication, Inc.,
Suite 421, 1010 Vermont Ave. NW.,
Washington D.C. 20005.

For information about careers and workshops in the field of health communication, contact:

American Medical Writers Association, Suite
290, 5272 River Rd., Bethesda, Md.
20016.

OCCUPATIONS IN RADIO AND TELEVISION BROADCASTING

The glamour and excitement of radio and television make broadcasting careers attractive to many people. In 1976 about 130,000 full-time and 30,000 part-time workers were employed in broadcasting; slightly more than half were in radio and the rest were in television. In addition, several thousand freelance artists, mostly writers, performers, and musicians, work on a contract basis for stations, networks, and other producers. Several thousand other employees work for independent producers in activities closely related to broadcasting, such as the preparation of filmed and taped programs and commercials.

Broadcasting stations offer a variety of interesting jobs in all parts of the country. Opportunities for entry jobs are best at stations in small communities, although the highest paying jobs are in large cities, especially those with national network stations.

Nature and Location of the Industry

Commercial broadcasting. In 1976 about 7,250 commercial radio stations and 720 commercial television stations were in operation in the United States. Most commercial radio broadcasting stations are small, independent businesses. The average station employs about 11 full-time and 4 part-time workers. The smallest radio stations employ only four or five people while radio stations in large cities may have 100 employees or more. Television stations average about 75 full-time and 10 part-time employees. However, many television stations are smaller than this, while some are much larger. A television station in a small market may employ only 30 people, while a station in a major metropolitan area may employ up to 250 people. Commercial radio stations are served by



Station personnel preparing for a newscast.

seven nationwide networks and a large number of regional networks. Stations can affiliate with networks by agreeing to broadcast their programs on a regular basis. The seven national radio networks employed approximately 1,000 workers in 1975.

Most television stations depend on one of three national television networks for programs that would be too expensive for individual stations to originate—for example, sports events or newscasts of national and international significance. These networks, in turn, can offer national

coverage to sponsors. As many as 200 stations across the country may carry a network television show. In 1975 the three national networks employed about 13,000 workers. Most network programs originate in New York City or Los Angeles.

Public broadcasting. There were about 850 noncommercial radio stations (mainly FM) and 270 educational television stations in 1976. These stations are operated principally by educational agencies such as State commissions, local boards of education, colleges and universities,

and special community public television organizations. Educational stations employed more than 9,000 full-time and over 4,000 part-time workers in 1976.

Cable television. There were also about 3,570 cable TV systems (CATV) employing about 25,000 workers in 1976.

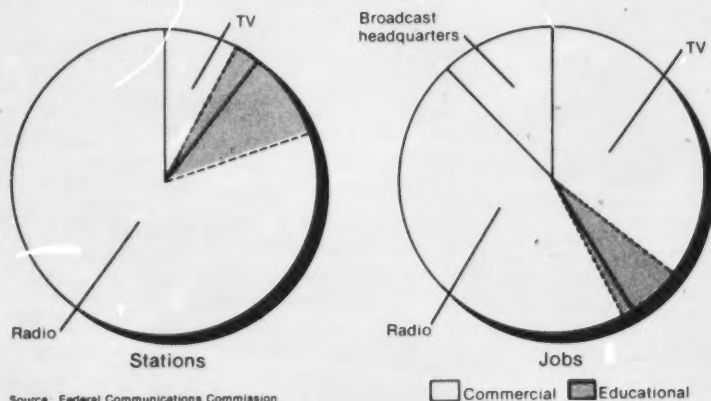
Broadcasting Occupations

Nearly half of all employees in the broadcasting industry hold professional and technical jobs, such as announcers, anchors and news persons, writers, or broadcast technicians. Clerical and sales workers make up an additional 30 percent, and managerial personnel make up about one-fifth. Many of the remaining employees are craft workers, such as electricians and carpenters.

Jobs vary greatly between small and large stations. In small stations, the station manager, who frequently is the owner, may act as sales manager, or perhaps as program director, announcer, and copywriter. Announcers in small stations may do their own writing, operate the studio control board, and do sales work. The engineering staff may consist of only one full-time broadcast technician assisted by workers from the other departments. In large radio and television stations, jobs are specialized. Traditionally, radio and television stations maintain four major departments: programming, engineering, sales, and general administration. An increasing number of stations have created a separate department for news; elsewhere, news personnel work in the programming department. The kinds of jobs found in each of the four departments are described in the following paragraphs.

Programming Department. Staff members produce daily and weekly shows, assign personnel to cover special events, and provide general program services such as sound effects and lighting. From time to time, freelance performers, writers, singers, and other entertainers are hired for specific broadcasts, for a series of broadcasts, or for special assignments.

Although television accounted for only 11 percent of all broadcast stations and systems, it provided 41 percent of all broadcast jobs in 1976



The size of a station's programming department depends on the extent to which its broadcasts are live, recorded, or received from a network. In a small station, a few people make commercial announcements, read news and sports summaries, select and play recordings, and introduce network programs. In a large station, on the other hand, the program staff may consist of a large number of people in a wide variety of specialized jobs.

Program directors are responsible for the overall program schedule of large stations. They arrange for a combination of programs that will be attractive and interesting to the audience and at the same time effectively meet the needs of advertisers.

Traffic managers prepare daily schedules of programs and keep records of broadcasting time available for advertising. *Continuity directors* are responsible for the writing and editing of all scripts. They may be assisted by *continuity writers*, who prepare announcers' books ("copy") that contain each program's script and commercials along with their sequence and length.

Directors plan and supervise individual programs or series of programs. They coordinate the shows, select artists and studio personnel, schedule and conduct rehearsals, and direct on-the-air shows. They may be assisted by *associate directors*, who work out detailed schedules and plans, arrange for distribution of scripts and changes in scripts to the cast, and help direct on-the-air shows. Some stations employ *program assistants* to aid directors and associate directors. Assistants help assemble and coordinate the various parts of the show. They arrange for props, makeup service, artwork, and film slides and assist in timing. They cue the performers, using cue cards prepared from scripts.

Community and public affairs directors are a link between the station and schools, churches, citizen groups, and civic organizations. They supervise, write, and host public affairs programs.

In large stations, directors may work under the supervision of a *producer*, who selects scripts, controls finances, and handles other produc-

tion problems. Many times these functions are combined in the job of *producer-director*.

Announcers are the best known group of program workers. Announcers introduce programs, guests, and musical selections and deliver most of the live commercial messages. In small stations, they also may operate the control board, sell time, and write commercial and news copy. Broadcast announcers are discussed in detail elsewhere in the *Handbook*.

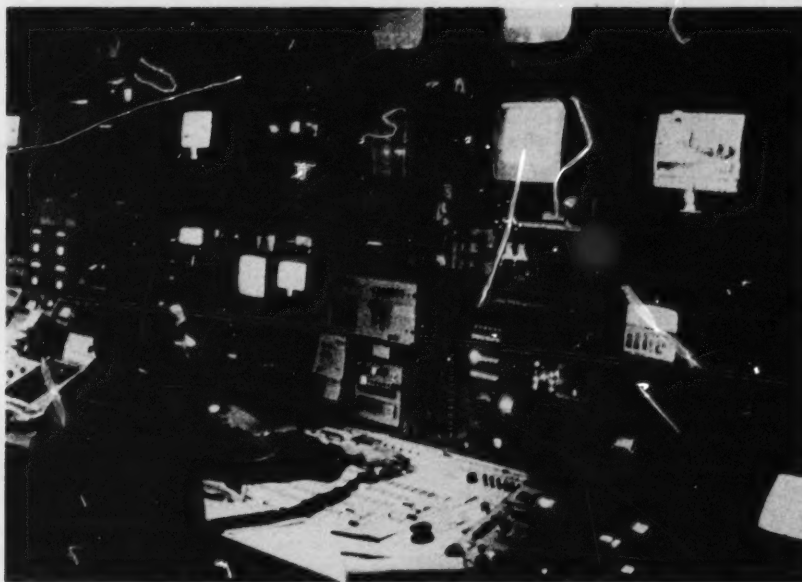
Music is an important part of radio programming. Both small and large stations use recordings and transcriptions to provide musical programs and background music for other shows. Large stations, which have extensive music libraries, sometimes employ *music librarians* to maintain music files and answer requests for any particular selection of music. The networks have specialized personnel who plan and arrange for musical services. *Musical directors* select, arrange, and direct music for programs following general instructions from program directors. They select musicians for live broadcasts and direct them during rehearsals and broadcasts. Musicians are generally hired on a freelance basis.

News gathering and reporting is a key aspect of radio and television

programming. *News directors* plan and supervise all news and special events coverage. *News reporters* broadcast daily news programs and report special news events on the scene. *News writers* select and write copy for newscasters to read on the air. In small stations, the jobs of news reporter and news writer often are combined.

Stations that originate live television shows must have staff members who take care of staging the programs. *Studio supervisors* plan and supervise the setting up of scenery and props. *Floor managers* plan and direct the performers' positions and movements on the set according to directors' instructions. The jobs of studio supervisor and floor manager often are combined. *Property handlers* set up props, hold cue cards, and do other unskilled chores. *Make-up artists* prepare personnel for broadcasts by applying cosmetics. *Scenic designers* plan and design settings and backgrounds for programs. They select furniture, draperies, pictures, and other props to help convey the desired visual impressions. *Sound effects technicians* operate special equipment to simulate sounds, such as gunfire or rain.

Almost all commercial television programming is recorded either on film or video tape. Broadcast techni-



Broadcast technician in control room monitoring telecast.

cians make video tape recordings on electronic equipment that permits instantaneous playback of a performance. Video tape is used to record live shows and to prerecord programs for future broadcasts. Many stations employ specialized staff members to take care of filmed program material. *Film editors* edit and prepare all film for on-the-air presentation. They screen all films received, cut and splice films to insert commercials, and edit locally produced film. *Film librarians* catalog and maintain files of motion picture film.

Engineering Department. Technicians position microphones, adjust levels of sound, keep transmitters operating properly, and move and adjust lights and television cameras to produce clear, well-composed pictures. They also install, maintain, and repair the many types of electrical and electronic equipment required for these operations.

Most stations employ *chief engineers*, who are responsible for all engineering matters, including supervision of technicians. In small stations, they also may work at the control board and repair and maintain equipment. Large stations have engineers who specialize in fields such as sound recording, maintenance, and lighting. Networks employ a few *development engineers* to design and develop new electronic apparatus to meet special problems.

Broadcast technicians have many jobs. For example, they control the operation of the transmitter to keep the level and frequency of broadcast within legal requirements. They also set up, operate, and maintain equipment in the studio and in locations where remote broadcasts are to be made. (Further information on broadcast technicians is given elsewhere in the *Handbook*.)

Sales Department. *Sales representatives*, the largest group of workers in this department, sell advertising time to sponsors, advertising agencies, and other buyers. They must have a thorough knowledge of the station's operations and programming. The job also requires that they be knowledgeable about the audience—including, for example, size and char-

acteristics, number of radio and television sets in use, income levels, and consumption patterns. Sales representatives in large stations often work closely with sponsors and advertising agencies. Many television stations sell a substantial part of their time, particularly to national advertisers, through independent advertising agencies.

Large stations generally have several workers who do only sales work. The sales manager supervises them, and also may handle a few of the largest accounts personally. Some large stations employ statistical and research personnel to help analyze and report market information on the community served.

General administration. In a very small station, the owner and a bookkeeper may handle all the record-keeping, accounting, purchasing, hiring, and other routine office work. If the size of the station warrants it, the business staff may include accountants, lawyers, personnel workers, and others. They are assisted by office workers, such as secretaries, typists, bookkeepers, clerks, and messengers.

Training, Other Qualifications, and Advancement

A high school diploma is sufficient for many entry-level jobs in broadcasting. For an increasing number of jobs, however, technical training or a college degree is preferred. Entry-level jobs in the engineering department, for example, require some technical training in electronics. A college education provides a good background for many jobs in the programming, sales, and business end of broadcasting. While a major in almost any field is acceptable, many stations prefer candidates with a background in the liberal arts. Some technical schools offer courses in broadcasting, and many colleges and universities offer 2- or 4-year degree programs in broadcasting, mass communications, telecommunications, speech, and journalism.

Education beyond high school almost always is an asset in terms of career potential and advancement. A high school graduate may start work-

ing for a radio station in a sales job, for example, but opportunities to progress to the management ranks are likely to be much greater with a college degree. In the programming area, proficiency in announcing may be enough to land a job, but advancement usually requires a strong educational background in addition to administrative skills.

Television programming for networks and large independent stations generally requires some experience in broadcasting in addition to a college degree.

Some people get their start in broadcasting as clerks, typists, property handlers, or assistants. Jobs such as these do not ordinarily require specialized training or experience. They do, however, provide workers with the chance to advance to more responsible jobs as they gain knowledge and experience. A few people get started in broadcasting with temporary jobs in the summer when regular workers go on vacation and broadcast schedules of daylight-hours stations are increased.

Technical training in electronics is required for entry jobs in engineering departments. Programs in electronics are offered by trade schools and technical institutes, and also by junior and community colleges. High school courses in electronics, mathematics, and physics often are helpful to people who plan to pursue careers as broadcast technicians.

Some technical schools give courses especially designed to prepare the student for the series of written examinations required for the Federal Communication Commission's (FCC) First Class Radiotelephone Operator License. The tests cover the theory, construction, and operation of transmission and receiving equipment; the characteristics of electromagnetic waves; and U.S. and international regulations governing broadcasting. The first class license (the FCC also issues second and third class licenses) is required by law for the chief engineer, and usually is required by stations for other members of a radio or television station's engineering staff. Industry experts stress the importance of a first class license, particularly for techni-

cians who wish to progress to the top ranks in broadcast engineering. In some metropolitan areas, where competition for jobs is keen, holders of a first class license are at an advantage in finding employment as a broadcast technician.

Small radio stations with only a few employees sometimes prefer to have as many staff members as possible who are legally qualified to operate their transmitters. Because of this, nontechnicians, especially announcers, have a better chance of getting a job in radio if they have a first class or third class license.

Entry jobs as announcers in small stations usually do not require specific training or experience, but an applicant must have a pleasant voice, a good command of the language, and other characteristics that make a dramatic or attractive personality. Courses in speech, English, social science, drama, and electronics are helpful to persons seeking careers as announcers. In addition, college campus radio experience, summer and part-time employment at local stations, and a good knowledge of the commercial industry are all highly regarded as backgrounds. Qualifications for administrative and sales jobs in broadcasting are similar to those required by other employers; a business course program of study in high school or a college degree in business or management is good preparation for such jobs.

Most beginners start out in small educational and public broadcasting stations. Although these stations cannot pay high salaries, they offer opportunities to learn the different phases of broadcasting work because they generally use personnel in combination jobs. For example, an announcer may perform some of the duties of a broadcast technician.

People in the engineering department tend to remain in this area of work, where thorough training in electronics is essential. Program employees usually remain in programming work, although sometimes transfers to and from the sales and business departments are made. Transfers are easier between sales and general administrative departments because of their close working relationship; in fact, in small stations,

they are often merged into one department. Although transfers of experienced workers between departments are limited to the extent noted, these distinctions are less important in beginning and top-level jobs. At the higher levels, a station executive may be drawn from top-level personnel of any department.

Many radio and television station managers consider training in a private trade or technical school helpful for people interested in careers in the broadcasting industry. However, before enrolling in any broadcasting school, whether public or private, prospective students should contact employers, broadcasting trade organizations, and the Better Business Bureau in their area to determine the school's performance in producing suitably trained candidates.

Employment Outlook

Employment in the broadcasting industry is expected to grow about as fast as the average for all industries through the mid-1980's. Besides the job openings from growth, many openings will result from the need to replace experienced workers who retire, die, or leave the industry for other reasons. Competition will be very keen for entry jobs, especially in metropolitan areas, because this field traditionally attracts large numbers of jobseekers.

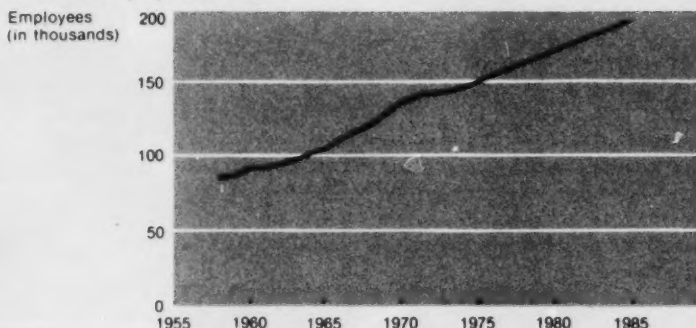
New radio stations can be expected to go on the air, particularly in small communities, and will offer opportunities for additional workers. Technological developments are likely to limit employment growth in some broadcasting occupations. For example, automatic programming equipment that permits radio stations to provide virtually unattended programming reduces requirements for announcers.

The number of educational television stations is expected to increase as private and government groups continue to expand in this area. The growth of educational stations will increase job opportunities, especially in programming, community relations, and station management. However, such technological advances as remotely controlled transmitter and automatic programming equipment may limit employment growth in engineering and technician jobs.

Cable television (CATV) has emerged as a powerful new force in communications, and some additional job opportunities for professional, technical, and maintenance workers will be created as CATV systems increasingly originate and transmit programs. Many of these new jobs will be in small cities where most CATV systems are located to improve television reception in rural areas. By using cables instead of air-

The steady employment growth in radio and television broadcasting is expected to continue through 1985, with many of the new jobs in educational and cable television

Wage and salary workers in radio and television broadcasting, 1958-76 and projected 1985



Source: Bureau of Labor Statistics

waves, CATV can offer customers a larger selection of stations plus many additional programs produced specifically for cable television.

Earnings and Working Conditions

In 1976 earnings of nonsupervisory broadcasting workers averaged \$5.78 an hour, nearly one-fifth more than the average for nonsupervisory workers in private industry, except farming. Salaries vary widely among occupations and locations in the broadcasting industry. Employees in large cities generally earn much more than those in the same kinds of jobs in small towns. Salaries also tend to be higher in large stations than in small ones, and higher in television than in radio.

Most full-time broadcasting employees have a scheduled 40-hour workweek; employees in many small stations work longer hours. Sales and business employees generally work in the daytime hours common to most office jobs. However, program and engineering employees must work shifts which may include evenings, nights, weekends, and holidays. To meet a broadcast deadline, program and technical employees in the networks may have to work continuously for many hours under great pressure.

Several unions operate in the broadcasting field. They are most active in the network centers and large stations in metropolitan areas. The National Association of Broadcast Employees and Technicians and the International Brotherhood of Electrical Workers both organize all kinds of broadcasting workers, although most of their members are technicians. The International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators organizes various crafts, such as stagehands, sound and lighting technicians, wardrobe attendants, make-up artists, and camera operators. Many announcers and entertainers are members of the American Federation of Television and Radio Artists. The Directors Guild of America, Inc. (Ind.) organizes program directors, associate directors, and stage managers. The Screen Actors Guild, Inc.,

represents the majority of entertainers who appear on films made for television.

Sources of Additional Information

Booklets entitled "Careers in Radio" and "Careers in Television" are available from:

National Association of Broadcasters, 1771 N St. NW., Washington, D.C. 20036.

For information about colleges and universities that offer programs or course work in broadcasting, contact:

Executive Secretary, Broadcast Education Association, National Association of Broadcasters, 1771 N St. NW., Washington, D.C. 20036.

For information on careers in public radio and television broadcasting, write to:

Corporation for Public Broadcasting, 1111 16th St. NW., Washington, D.C. 20036.

BROADCAST TECHNICIANS

(D.O.T. 194.168, .281, .282, and 782; 957.282; and 963.168 through .887)

Nature of the Work

Broadcast technicians operate and maintain the electronic equipment used to record and transmit radio and television programs. They work with microphones, sound recorders, light and sound effects, television cameras, video tape recorders, and other equipment.

In the control room, broadcast technicians operate equipment that regulates the quality of sounds and pictures being recorded or broadcast. They also operate controls that switch broadcasts from one camera or studio to another, from film to live programming, or from network to local programs. By means of hand signals and, in television, by use of telephone headsets, they give technical directions to personnel in the studio.

When events outside the studios are to be broadcast, technicians may go to the site and set up, test, and

operate the equipment. After the broadcast, they dismantle the equipment and return it to the station.

As a rule, broadcast technicians in small stations perform a variety of duties. In large stations and in networks, on the other hand, technicians are more specialized, although specific job assignments may change from day to day. *Transmitter technicians* monitor and log outgoing signals and are responsible for transmitter operation. *Maintenance technicians* set up, maintain, and repair electronic broadcasting equipment. *Audio control technicians* regulate sound pickup, transmission, and switching, and *video control technicians* regulate the quality, brightness, and contrast of television pictures. The lighting of television programs is directed by *lighting technicians*. For programs originating outside the studio, *field technicians* set up and operate broadcasting equipment. *Recording technicians* operate and maintain sound recording equipment, *video recording technicians* operate and maintain video tape recording equipment. Sometimes the term "engineer" is substituted for "technician."

Places of Employment

About 22,500 broadcast technicians were employed in radio and television stations in 1976. Most radio stations employ fewer than four technicians, although a few large ones have more than 10. Nearly all television stations employ at least 10 broadcast technicians, and those in large metropolitan areas average about 30. In addition to the technicians, some supervisory personnel, with job titles such as chief engineer or director of engineering, work in engineering departments.

Although broadcast technicians are employed in every State, most are located in large metropolitan areas. The highest paying and most specialized jobs are concentrated in New York, Los Angeles, and Washington, D.C.—the originating centers for most of the network programs.

Training, Other Qualifications, and Advancement

A person interested in becoming a broadcast technician should plan to



Broadcast technician makes video tape recording on electronic equipment.

get a First Class Radiotelephone Operator License from the Federal Communications Commission (FCC). Federal law requires that anyone who operates broadcast transmitters in television stations must hold such a license. The law also requires that the chief engineer of a broadcasting station hold a first class license. The FCC issues a Third Class Operator License, too, and some stations require all their broadcast technicians to have one or the other of these licenses. Applicants for an FCC license must pass a series of written examinations. These cover construction and operation of transmission and receiving equipment; characteristics of electromagnetic waves; and regulations and practices, both Federal and international, which govern broadcasting.

Among high school courses, algebra, trigonometry, physics, electronics, and other sciences provide valuable background for persons anticipating careers in this occupation. Building and operating an amateur radio station also is good training. Taking an electronics course in a technical school is still another good way to acquire the knowledge for becoming a broadcast technician. Some persons gain work experience as temporary employees while filling in for regular broadcast technicians who are on vacation.

Many schools give courses especially designed to prepare the student for the FCC's first class license test. Technical school or college training is an advantage for those who hope to advance to supervisory positions or to the more specialized jobs in large stations and in the networks.

Persons with FCC first class licenses who get entry jobs are instructed and advised by the chief engineer or by other experienced technicians concerning the work procedures of the station. In small stations, they may start by operating the transmitter and handling other technical duties, after a brief instruction period. As they acquire more experience and skill they are assigned to more responsible jobs. Those who demonstrate above-average ability may move into top-level technical positions, such as supervisory technician or chief engineer. A college degree in engineering is becoming increasingly important for advancement to supervisory and executive positions.

Employment Outlook

People seeking beginning jobs as broadcast technicians face competition, especially in major metropolitan areas where the number of qualified jobseekers exceeds the number of openings. Job prospects may be better in smaller cities for people

with appropriate training in electronics.

Employment of broadcast technicians is expected to increase about as fast as the average for all occupations through the mid-1980's. Most job openings, however, will result from the need to replace experienced technicians who retire, die, or transfer to other occupations.

Some new job opportunities for technicians will arise as new radio and television stations go on the air. Demand for broadcast technicians also will increase as cable television stations broadcast more of their own programs. At the same time, technological developments are likely to limit future demand; such as labor-saving technical advances as automatic programming, automatic operation logging, and remote control of transmitters all hold down demand for additional technicians.

Earnings and Working Conditions

Salaries of beginning technicians in commercial radio and television ranged from about \$155 to \$215 a week in 1976 and those of experienced technicians from about \$200 to \$450, according to the limited information available. As a rule, technicians' wages are highest in large cities and in large stations. Technicians employed by television stations usually are paid more than those who work for radio stations because television work is generally more complex. Technicians employed by educational broadcasting stations generally earn less than those who work for commercial stations.

Most technicians in large stations work a 40-hour week with overtime pay for additional hours. Some broadcast technicians in the larger cities work a 37-hour week. In small stations, many technicians work 4 to 12 hours of overtime each week. Evening, night, and weekend work frequently is necessary since many stations are on the air as many as 24 hours a day, 7 days a week. Network technicians may occasionally have to work continuously for many hours and under great pressure in order to meet broadcast deadlines.

Technicians generally work indoors in pleasant surroundings. The work is interesting, and the duties are varied. When remote pickups are made, however, technicians may work out of doors at some distance from the studios, under less favorable conditions.

Sources of Additional Information

For information about radiotelephone operator's examinations, and guides to study for them, write to:

Federal Communications Commission, Washington, D.C. 20554.

For information on careers for broadcast technicians, write to:

National Association of Broadcasters, 1771 N St. NW., Washington, D.C. 20036.

Corporation for Public Broadcasting, 1111 16th St. NW., Washington, D.C. 20036.

RADIO AND TELEVISION ANNOUNCERS

(D.O.T 159.148)

Nature of the Work

Most radio announcers act as disc jockeys, introducing recorded music, presenting news and commercials, and commenting on other matters of interest to the audience. They may "ad-lib" much of the commentary, working without a detailed script. They also may operate the control board, sell time for commercials, and write commercial and news copy. In large stations, however, other workers handle these jobs. (See the statement on occupations in the radio and television broadcasting industry elsewhere in the *Handbook*.)

Announcers employed by television stations and large radio stations usually specialize in particular kinds of announcing such as sports, news, or weather. They must be thoroughly familiar with their particular area. If a written script is needed for parts of the program, the announcer may do the research and writing. Announcers frequently participate in community activities. A sportscaster, for example, might be the master of

ceremonies at a touchdown club banquet or greet customers at the opening of a new sporting goods store. Some announcers become well-known and highly paid personalities.

Places of Employment

About 26,000 announcers were employed by radio and television broadcasting stations in 1976. The average commercial radio or television station employs four to six announcers, although larger stations employ 10 or more. In addition to staff announcers, several thousand freelance announcers sell their services for individual assignments to networks and stations, or to advertising agencies and other independent producers.

Training, Other Qualifications, and Advancement

Announcers must have a pleasant and well-controlled voice, a good sense of timing, and excellent pronunciation. Correct English usage and a knowledge of dramatics, sports, music, and current events improve chances for success. The most successful announcers have a combination of personality and a knack for dramatization that makes them attractive to audiences.

High school courses in English, public speaking, dramatics, foreign languages, and electronics, plus

sports and music hobbies, are valuable background for prospective announcers. A college liberal arts education provides an excellent background for an announcer, and many universities offer courses of study in the broadcasting field. Students at these institutions also may gain valuable experience by supplementing their courses with part-time work at the campus radio station and summer work at local stations, filling in for vacationing staff members. A number of private broadcasting schools offer training in announcing.

Persons considering enrolling in any school, whether public or private, that offers training for a broadcasting career should contact the personnel managers of stations, broadcasting trade organizations, and the Better Business Bureau in their area to determine the school's performance in producing suitably trained candidates.

Most announcers get their first broadcasting jobs in small stations. Because announcers in small radio stations sometimes operate transmitters, prospective announcers often obtain an FCC Radiotelephone Third Class Operator License which enables them to operate a radio transmitter and, therefore, makes them much more useful to these stations.

Announcers usually work in several different stations in the course of their careers. After acquiring experi-



Announcers usually specialize in a particular area such as news, sports, or weather.

ence at a station in a small community, an ambitious and talented announcer may move to a better paying job in a large city. An announcer also may advance by getting a regular program as a disc jockey, sportscaster, or other specialist. In the national networks, competition for jobs is intense, and announcers usually must be college graduates and have several years of successful announcing experience before they are given an audition.

Employment Outlook

Competition for beginning jobs as announcers will be keen through the mid-1980's. The great attraction of the broadcasting field, plus its relatively small size, will continue to mean many more jobseekers than jobs. Over the next decade, it will be easier to get jobs in radio than in television because more radio stations hire beginners. These jobs generally will be located in small stations, and the pay will be relatively low.

Employment of announcers is expected to increase faster than the average for all occupations through the mid-1980's as new radio and television stations are licensed. Some jobs

will become available as more cable television stations begin their own programming. Employment of announcers will not keep pace with the increase in the number of stations, however, because of the increased use of automatic programming equipment. Many jobs in this relatively small occupation will result from the need to replace experienced announcers who transfer to other occupations, retire, or die.

Earnings and Working Conditions

Salaries of beginning announcers in commercial television ranged from about \$185 to \$230 a week in 1976, and those of experienced announcers ranged from about \$300 to \$500, according to the limited information available. Many well-known announcers earn much more. As a rule, salaries increase with the size of the community and the station, and salaries in television are higher than those in radio. Announcers employed by educational broadcasting stations generally earn less than those who work for commercial stations.

Most announcers in large stations work a 40-hour week and receive

overtime pay for work beyond 40 hours. In small stations, many announcers work 4 to 12 hours of overtime each week. Working hours consist of both time on the air and time spent in preparing for broadcasts. Evening, night, weekend, and holiday duty occurs frequently since many stations broadcast 24 hours a day, 7 days a week.

Working conditions are usually pleasant because of the variety of work and the many personal contacts that are part of the job. Announcers also receive some satisfaction from becoming well known in the area their station serves.

Sources of Additional Information

For general career information, write to:

National Association of Broadcasters, 1771 N. St. NW., Washington, D.C. 20036.

Corporation for Public Broadcasting, 1111 16th St. NW., Washington, D.C. 20036.

For information on how to obtain an FCC license, write to:

Federal Communications Commission, Washington, D.C. 20554.